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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/818,239	03/14/97	TAYANAKA H	P97.0027

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MM31/1203

EXAMINER	
CHRISTIANSON.K	

ART UNIT	PAPER NUMBER
2813	

DATE MAILED: 12/03/98

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/818,239	Applicant(s) Tayanaka
	Examiner Keith Christianson	Group Art Unit 2813

☒ Responsive to communication(s) filed on *Oct 9, 1998*.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-16* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-16* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Election/Restriction

1. Applicant's election of Invention 1, claims 1-16 in Paper No. 6 is acknowledged. Because of applicant's wording ("for prosecution on the merits first in this application") the election has been assumed to be with traverse.

Specification

2. The disclosure is objected to because of the following informalities: on page 21, line 2 the subscripts associated with "Si1-yGey" are missing; on page 29, line 6 (also page 33, line 3) "the strength around here" is poor English, perhaps --the strength at this location-- would be better; on page 40, line 3 the superscript associated with "mA/cm2" is missing; on page 45, line 20 the clause beginning with "Further" is a run-on sentence.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the examiner is confused by the use of the words "same" and "varies". Do these words, which refer to the electrolytic solution, refer to the changing out of the solution after each step, the temperature of the solution, the concentration of the solution, the constituents of the solution, or some other meaning?

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita et al. (U.S. Patent No. 5,811,348). Matsushita et al. describes forming a porous layer by anodizing in hydrogen fluoride and a hydrocarbon alcohol (column 4, line 3) the surface of a substrate, forming at least one semiconductor layer on said porous layer, and then separating the semiconductor layer from the porous layer in or adjacent to the porous layer (claim 1). Annealing the semiconductor substrate in a hydrogen atmosphere after anodizing is disclosed (claim 6), as is oxidizing before hydrogen annealing (column 4, lines 31-38), as is epitaxial film growth (column

4, lines 16-19). Also disclosed is the use of supporting substrates, either rigid or flexible, attached by adhesive bonding (column 5, line 41 through column 6, line 5). Single crystal Si (column 4, lines 9-10), and compound semiconductor substrates (column 9, line 33) are also discussed. But, Matsushita et al. does not describe varying the anodization current density to form a second (or second and third) porous layer(s) having porosities greater than that of the previous porous layer(s) and separating the semiconductor film from the porous layers in or adjacent to the most porous layer, nor do they disclose using impurity doped substrates.

However, one of ordinary skill in the art would recognize that the mere repetition of elements is obvious (In re Harza, 124 USPQ 378 (CCPA 1960)). Also, Official Notice is taken that varying the anodization current density will vary the porosity of the resulting film, and that impurity doped substrates are an obvious substitution for the substrate due to their ready availability. Thus, one of ordinary skill in the art would anticipate the fabrication of multiple layers of porous semiconductor in order to facilitate the growth and removal of the semiconductor film from the substrate, with the separation taking place at the weakest location, i.e. the most porous layer.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 5,811,348. Although the conflicting claims are not identical, they are not patentably distinct from each other because one of ordinary skill in the art would recognize that the mere repetition of elements is obvious (In re Harza, 124 USPQ 378 (CCPA 1960)). In this instant application, the fabrication of multiple porous layers where the cleavage always takes place in the most porous layer followed by crystal growth is an obvious variation of the fabrication of a single porous layer followed by cleavage in the porous layer and subsequent crystal growth.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Christianson whose telephone number is (703) 305-4029. The examiner can normally be reached on Monday to Friday from 6:30 AM to 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Bowers, can be reached on (703) 308-2417. The fax phone number for this Group is (703) 305-3432.

KC

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November 30, 1998

Charles Bowers
Supervisory Patent Examiner
Technology Center 2800